

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

None of the claims have been amended or cancelled. The following is a list of all pending claims and their current status for the convenience of the Examiner.

1-10. (Cancelled)

11. (Previously Presented) A method of preparing a positive active material for a rechargeable lithium battery comprising:

coating at least one lithiated compound with an organic solution of coating material source, the organic solution excluding water and prepared by adding a coating material source to an organic solvent forming a mixture, to produce a coated lithiated compound; and

drying the coated lithiated compound at a temperature between 60°C to 100°C forming a surface treatment layer on the coated lithiated compound without further heat-treating the dried coated lithiated compound,

wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof, and

wherein the at least one lithiated compound is prepared by mixing a lithium source, a metal source, and a solvent and the mixture is heat-treated twice.

12. (Original) The method of claim 11 wherein the lithiated compound is at least one lithiated compound represented by formulas 1 to 11,

$\text{Li}_x\text{Mn}_{1-y}\text{M}'_y\text{A}_2$ (1)

$\text{Li}_x\text{Mn}_{1-y}\text{M}'_y\text{O}_{2-z}\text{A}_z$ (2)

$\text{Li}_x\text{Mn}_2\text{O}_{4-z}\text{A}_z$ (3)

$\text{Li}_x\text{Mn}_{2-y}\text{M}'_y\text{A}_4$	(4)
$\text{Li}_x\text{M}_{1-y}\text{M}''_y\text{A}_2$	(5)
$\text{Li}_x\text{MO}_{2-z}\text{A}_z$	(6)
$\text{Li}_x\text{Ni}_{1-y}\text{Co}_y\text{O}_{2-z}\text{A}_z$	(7)
$\text{Li}_x\text{Ni}_{1-y-z}\text{Co}_y\text{M}''_z\text{A}_\alpha$	(8)
$\text{Li}_x\text{Ni}_{1-y-z}\text{Mn}_y\text{M}'_z\text{A}_\alpha$	(9)
$\text{Li}_x\text{Ni}_{1-y-z}\text{Co}_y\text{M}''_z\text{O}_{2-\alpha}\text{X}_\alpha$	(10)
$\text{Li}_x\text{Ni}_{1-y-z}\text{Mn}_y\text{M}'_z\text{O}_{2-\alpha}\text{X}_\alpha$	(11)

where

$0.95 \leq x \leq 1.1$, $0 \leq y \leq 0.5$, $0 \leq z \leq 0.5$, $0 \leq \alpha \leq 2$,

M is Ni or Co,

M' is at least one element selected from the group consisting of Al, Ni, Co, Cr, Fe, Mg, Sr, V, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No and Lr,

M'' is at least one element selected from the group consisting of Al, Cr, Mn, Fe, Mg, Sr, V, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No and Lr,

A is selected from the group consisting of O, F, S and P, and

X is selected from the group consisting of F, S and P.

13. (Previously Presented) The method of claim 11 wherein the coating material source is selected from the group consisting of a coating element, a coating element included-alkoxide, salt and oxide.

14. (Previously Presented) The method of claim 11 wherein the mixture is refluxed to form the organic solution of coating material source.

15 - 16. (Cancelled)

17. (Previously Presented) The method of claim 11 wherein the organic solution of coating material source is formed from a coating element that is soluble in the organic solvents.

18. (Original) The method of claim 17 wherein the coating element of the coating material source is at least one element selected from the group consisting of Mg, Al, Co, K, Na, Ca, Si, Ti, Sn, V, Ge, Ga, B, As, Zr, and a mixture thereof.

19. (Previously Presented) The method of claim 11 wherein the concentration of coating material source in the organic solution is 0.1 to 50 percent by weight.

20. (Previously Presented) The method of claim 19 wherein the concentration of coating material source in the organic solution is 5 to 30 percent by weight.

21. (Cancelled)

22. (Previously Presented) The method of claim 11, wherein the coating of the at least one lithiated compound further comprises injecting blowing gas into a mixer.

23. (Previously Presented) The method of claim 11, wherein the coating of the at least one lithiated compound is performed under a vacuum.

24. (Previously Presented) The method of claim 11 further comprising sieving the dried coated compound.

25 - 37. (Cancelled)

38. (Previously Presented) A method of preparing a positive active material including a core and a surface-treatment layer, for a rechargeable lithium battery, the method comprising:

coating the core including at least one lithiated compound, with an organic solution of coating material source, the organic solution excluding water and prepared by adding a coating material source to an organic solvent to form a mixture; and

drying the coated core at a temperature between 60°C to 100°C, without further heat-

treating the core, forming the surface treatment layer on the core, wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof,

wherein the coating and drying of the lithiated compound is performed by injecting the lithiated compound and the organic solution into a mixer and continuously increasing the temperature within the mixer, and

wherein the at least one lithiated compound is prepared by mixing a lithium source, a metal source, and a solvent and the mixture is heat-treated twice.

39. (Previously Presented) A method of preparing a positive active material for a rechargeable lithium battery comprising:

coating a core having at least one lithiated compound with an organic solution of coating material source, the organic solution excluding water and prepared by adding a coating material source to an organic solvent to form a mixture; and

drying the core at a temperature between 60°C to 100°C without further heat-treating the core, forming a surface treatment layer on the core,

wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof, and

wherein the at least one lithiated compound is prepared by mixing a lithium source, a metal source, and a solvent and the mixture is heat-treated twice.

40. (Previously Presented) A method of preparing a positive active material including a core and a surface-treatment layer, for a rechargeable lithium battery, the method comprising:

coating the core including at least one lithiated compound, with an organic solution of coating material source, the organic solution excluding water and prepared by adding a coating material source to an organic solvent to form a mixture; and

drying the coated core at a temperature between 60°C to 100°C, without further heat-treating the core, forming the surface treatment layer on the core,

wherein the coating and drying of the lithiated compound is performed simultaneously, and wherein the at least one lithiated compound is prepared by mixing a lithium source, a metal source, and a solvent and the mixture is heat-treated twice.

41. (Previously Presented) A method of preparing a positive active material for a rechargeable lithium battery comprising:

coating at least one lithiated compound having an average diameter of 10 μm with an organic solution of coating material source, the organic solution excluding water and prepared by adding a coating material source to an organic solvent to form a mixture and to produce a coated lithiated compound; and

drying the coated lithiated compound at a temperature between 60°C to 100°C forming a surface treatment layer on the coated lithiated compound without further heat-treating the dried coated lithiated compound,

wherein the surface treatment layer includes a coating element-included hydroxide, oxyhydroxide, oxycarbonate, hydroxycarbonate or a mixture thereof, and

wherein the at least one lithiated compound is prepared by mixing a lithium source, a metal source, and a solvent and the mixture is heat-treated twice.